



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,675	12/17/2001	Isao Ota	111483	5111

25944 7590 10/03/2006

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER
----------

UMEZ ERONINI, LYNETTE T

ART UNIT	PAPER NUMBER
----------	--------------

1765

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/015,675

Applicant(s)

OTA ET AL.

Examiner

Lynette T. Umez-Eronini

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,10,12,13 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,10,12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/24/2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Request For Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/10/2006 has been entered to address the Currently Amended Claims 1 and 10.

### ***Election/Restrictions***

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
- I. Claims 1-3, 10, 12, and 13, drawn to an abrasive sol, classified in class 252, subclass 79.1.
  - II. Claims 16-18, drawn to method of polishing a substrate, classified in class 438, subclass 692.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed

Art Unit: 1765

can be used in a materially different process of using that product such as polishing plastic ophthalmic lenses.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

6. Applicant provisionally elected with traverse, Group I, claims 1-3 and 11-18, which are drawn to a sol composition in response filed 2/17/2004.

7. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. Newly submitted (Currently Amended) claims 16-18 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 16-18 are directed to a method of polishing which is independent of claims 1-3, 10, 12, and 13, which are drawn to a sol composition.

Art Unit: 1765

Since Applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16-18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1-3, 10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tastu et al. (US 4,769,073) in view of Ashley et al. (EP 444470 A1) and further in view of Aozasa (US 6,171,572 B1).

Art Unit: 1765

Tastu teaches an admixture that contains a cerium oxide and lanthanide salt and that has a pH of greater than 6 but not less than 10 (column 7, line 19 - column 8, line 7). The aforementioned reads on and encompasses,

A sol having a pH of 3 to 6 or 8 to 10, **in claims 1 and 10.**

Tastu also teaches an admixture with a solution of a cerium salt, an aqueous solution of a salt of at least one trivalent rare earth, which includes lanthanum, praseodymium, and neodymium (column 4, lines 14-29) and lists a composition comprising: ceric oxide, lanthanum oxide, and neodymium oxide and having a mean particle diameter of  $1.5 \pm 1 \mu\text{m}$ , in EXAMPLE 1 (column 12, lines 13-37). Tatsu discloses ceric oxide in the form of the composition described in French Pat. No. 2,549,846 and such compositions comprise a crystallographic phase of  $\text{CeO}_2$  type . . . and corresponding to the formula  $\text{Ln}_{2-x}\text{Ce}_x\text{Si}_2\text{O}_7$  in which . . . x is greater than or equal to 0 and less than 2" (column 5, lines 7-15). The aforementioned further reads on,

A sol comprising particles dispersed in a medium, wherein;

the particles comprise as a main component crystalline cerium oxide of the cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof;

the additional component is contained in an  $X/(\text{Ce} + X)$  molar ratio of 0.005 to 15 in which X is lanthanum atoms, neodymium atoms or a combination thereof;

wherein the additional component is a lanthanum compound, **in claim 2;** and

wherein the additional component is a neodymium compound, **in claim 3.**

The aforementioned also reads on,

Art Unit: 1765

An abrasive comprising a sol including particles dispersed in an aqueous medium, wherein;

the particles comprise as a main component crystalline cerium oxide of cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof;

the additional component is contained in an  $X/(Ce + X)$  molar ratio of 0.005 to 0.15 in which X is lanthanum atoms, neodymium atoms or a combination thereof, **in claim 10;**

wherein the additional component is a lanthanum compound, **in claim 12;**

wherein the additional component is a neodymium compound, **in claim 13;** and

Tastu differs in failing to teach a particle size of 2 to 200  $m^2/g$ , **in claims 1 and 10.**

Ashley discloses a stable ceria composition of one or more of La, Nd or Y and the stabilized ceria retains a surface area of greater than 20  $m^2/g$  (Abstract), which encompasses a particle having a specific surface area of 2 to 200  $m^2/g$ .

Since Ashley illustrates the specific combination of particles having a surface area of 2 to 200  $m^2/g$  is known, then it would have been obvious to one having ordinary skill in the art at the time the invention was made to select any range of surface area as taught by Ashley, including Applicants' specifically claimed range of surface area for the purpose of forming a high surface area ceria composition by incorporating one or more of La or Nd to the composition (Ashley, Abstract).

Tastu in view of Ashley differs in failing to teach a sol wherein the particles have a particle size of 50 to 150 nm, **in claims 1 and 10**.

Aozasa teaches, “. . . a cerium sol having an average colloidal particle size of 3 to 100 nm, and optionally one or more members selected from the group consisting of salts of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, europium, gadolinium, magnesium, calcium, barium, aluminum, titanium, and hafnium . . . ” (column 3, lines 49) and “. . . a cerium sol having an average colloidal particle size of 3 to 100 nm, preferably 5 to 80 nm, more preferably 10 to 50 nm. . . . If the average colloidal particle size is smaller than 3 nm, production in industrial scale will be difficult” column 5, lines 52-59). Aozasa also teaches, cerium sol having a concentration of about 100 to 200 g/liter (~ 10 to 20 g/100 ml or 10-20 wt %), (column 6, lines 4-6).

It would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify the combination of abrasive materials as taught by Tastu in view of Ashley, by using Aozasa's sol having a particle size of 3 to 100 nm which falls within the particle size range as claimed by applicants for the purpose of ease of production on an industrial scale (Aozasa, column 8, lines 42-45).

### ***Response to Arguments***

14. Applicants' arguments filed 6/12/2006 have been fully considered but they are not persuasive. Applicants traverse the rejection of claims 1-3 under 35 U.S.C. § 103(a) over Tastu et al (US 4,769,073) in view of Ashley et al. (EP 444470 A1) as failing to teach or suggest a sol. Applicants argue Tastu's admixture of ceric oxide and rare earth



Art Unit: 1765

oxides along with Ashley's ceria composition containing one or more La, Nd, or Y having a surface area of greater than  $20 \text{ m}^2/\text{g}$  fails to teach or suggest or render obvious Applicants' specifically claimed sol and fails to teach a sol including particles having a main component crystalline cerium oxide and additional component a lanthanum compound, neodymium compound or a combination thereof.

Applicants' arguments are unpersuasive because Tatsu's admixture is a solution of cerium salt and an aqueous solution of a salt of at least one trivalent rare earth, which includes lanthanum, praseodymium, and neodymium (column 4, lines 14-29) and the ceric oxide is in the form of the composition described in French Pat. No. 2,549,846 and such compositions comprise a crystallographic phase of  $\text{CeO}_2$  type . . . and corresponding to the formula  $\text{Ln}_{2-x}\text{Ce}_x\text{Si}_2\text{O}_7$  in which . . . x is greater than or equal to 0 and less than 2" (column 5, lines 7-15). Hence, Tatsu's admixture comprises the same components as Applicants' sol.

It is acknowledged Tatsu fails to teach or suggest the specific surface area of particles recited in claim 1. However, Ashley is relied upon to illustrate a stable ceria composition of one or more of La, Nd or Y and the stabilized ceria retains a surface area of greater than  $20 \text{ m}^2/\text{g}$  (Abstract), which encompasses a particle having a specific surface area of 2 to  $200 \text{ m}^2/\text{g}$ . Thereby making it obvious to one having ordinary skill in the art at the time the invention was made to select any range of surface area as taught by Ashley, including Applicants' specifically claimed range of surface area for the purpose of forming a high surface area ceria composition by incorporating one or more of La or Nd to the composition (Ashley, Abstract).

Art Unit: 1765

Applicants transverse the rejection of claims 10, 12, 13, 15-18 under 35 U.S.C. § 103(a) over Tastu and Ashley in view of Aozasa (US 6,171,572) as failing teach or suggest the abrasive of claim 10 and a sol including particles having as a main component crystalline cerium oxide and as an additional component a lanthanum compound, neodymium compound or a combination thereof.

Applicants' arguments are acknowledged and unpersuasive because Aozasa is relied upon and teaches a cerium sol having an average colloidal particle size of 3 to 100 nm, and optionally one or more members selected from the group consisting of salts of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, europium, gadolinium, magnesium, calcium, barium, aluminum, titanium, and hafnium . . . " (column 3, lines 49). Thereby making it obvious to one having ordinary skill in the art at the time of the claimed invention to modify the combination or abrasive materials as taught by Tastu in view of Ashley, by using Aozasa's sol having a particle size of 3 to 100 nm which falls within the particle size range as claimed by applicants and for the purpose of ease of production on an industrial scale (Aozasa, column 8, lines 42-45).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465.

Art Unit: 1765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ltue

September 25, 2006

NADINE WORTON  
SUPERVISORY PATENT EXAMINER  
ART UNIT 1765  
